CATALOGUE

OF THE

WASHINGTON AGRICULTURAL COLLEGE AND SCHOOL OF SCIENCE,

1892-93.

PULLMAN, WASHINGTON.

OLYMPIA, WASH.:
O. C. WHITE, . . . STATE PRINTER.
1893.

SECOND ANNUAL CATALOGUE

OF THE

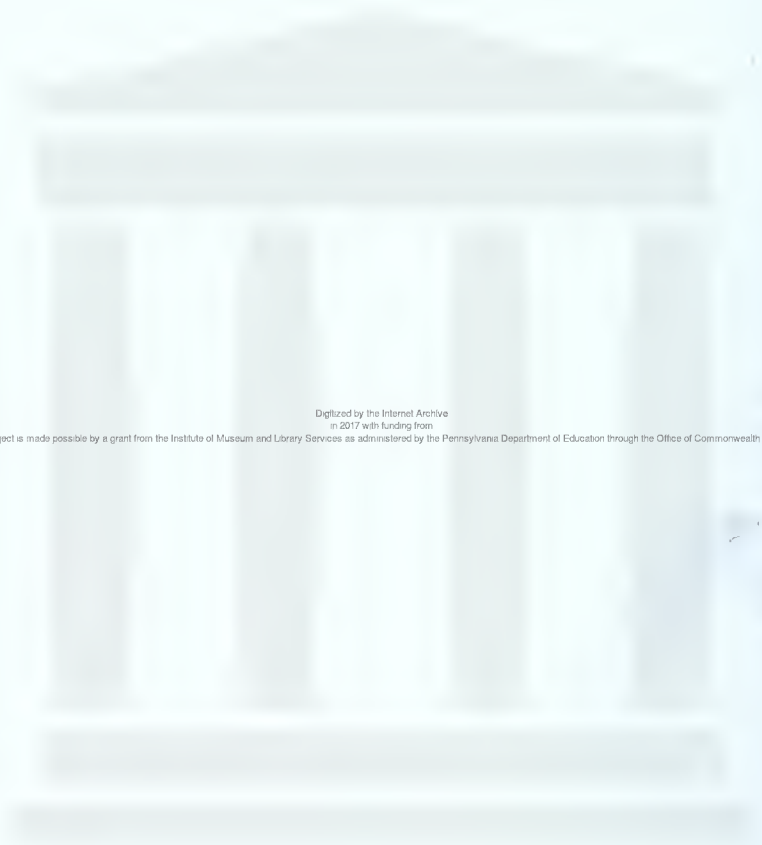
WASHINGTON STATE AGRICULTURAL COLLEGE AND SCHOOL OF SCIENCE,

LOCATED AT

PULLMAN, WHITMAN COUNTY, WASHINGTON.

1892-93.

OLYMPIA, WASH.:
O. C. WHITE, . . . STATE PRINTER.
1893.



Digitized by the Internet Archive
in 2017 with funding from
This project is made possible by a grant from the Institute of Museum and Library Services as administered by the Pennsylvania Department of Education through the Office of Commonwealth Libraries

https://archive.org/details/secondannualcata00wash

COLLEGE ANNOUNCEMENTS.

1893.

Entrance examinations,	Tuesday, Sept. 12.
Fall session begins,	Wednesday, Sept. 13.
Thanksgiving holiday,	Thursday, Nov. 23.
Fall session ends,	Wednesday, Dec. 20.

1894.

Winter session begins,	Wednesday, Jan. 3.
Holiday,	Thursday, Feb. 22.
Winter session ends,	Wednesday, March 28.
Spring session begins,	Wednesday, April 4.
Holiday,	Wednesday, May 30.
Commencement,	Thursday, June 21.

SUMMER VACATION, JUNE 22 TO SEPTEMBER 10.

Entrance examinations,	Tuesday, Sept. 11.
Fall session begins,	Wednesday, Sept. 12.
Thanksgiving holiday,	Thursday, Nov. 22.
Fall session ends,	Wednesday, Dec. 19.

EXAMINATIONS.

Written reviews and examinations are held during the term at the discretion of the instructor in each department. Examinations required at the close of each session, except that where a student's *term* grade in any subject reaches 90, he is excused from examination in that subject.

A report of the standing of every student is sent to the parent or guardian at the close of each session.

64421

BOARD OF REGENTS.

His Excellency JOHN H. McGRAW, (Advisory member.)	Olympia.
Hon. CHAS. R. CONNER,	Spokane.
Gen. T. R. TANNATT,	Farmington.
Hon. J. W. STEARNS,	Tekoa.
Hon. E. S. INGRAHAM,	Seattle.
Hon. H. S. BLANDFORD,	Walla Walla.

ORGANIZATION OF THE BOARD.

Hon. Chas. R. Conner, *President*, ... Spokane.
Gen. T. R. Tannatt, *Vice President*, ... Farmington.
Hon. J. W. Stearns, *Treasurer*, ... Tekoa.
John W. Heston, President of the College, *Secretary*, Pullman.

STANDING COMMITTEES.

Auditing, Finance and Experiment Stations.—T. R. Tannatt, chairman; H. S. Blandford, and E. S. Ingraham.

Buildings, Improvements, Purchasing and Insurance.—Chas. R. Conner, chairman; J. W. Stearns, and T. R. Tannatt.

Text Books, Instruction and Discipline.—E. S. Ingraham, chairman; H. S. Blandford, J. W. Stearns, and the President of the College.

Regular meetings of the Board are held, at the College, on the *third Monday* of each month.

FACULTY AND INSTRUCTORS.

JOHN W. HESTON, LL. D., *President*,
Professor of History and Political Science.

EDWARD R. LAKE, M. S.,
Professor of Agriculture, Horticulture and Forestry.

MRS. NANCY L. VAN DOREN, *Preceptress*,
Professor of English Literature and Librarian.

CHAS. V. PIPER, B. S.,
Professor of Botany and Zoölogy.

JAMES FERGUSON, *Secretary of the Faculty*,
Professor of Stenography and Typewriting.

ADDISON R. SAUNDERS, M. E.,
Professor of Mechanical Engineering and Physics.

OSMAR L. WALLER, B. S.,
Professor of Mathematics and Civil Engineering.

ELTON FULMER, M. A.,
Professor of Chemistry.

———— ————,*
Professor of Military Science and Tactics.

LYMAN C. READ,
Assistant Professor of Horticulture.

PREPARATORY DEPARTMENT.

GEORGE H. WATT, B. S., *Principal.*

Miss ANNA HOWARD, *Assistant.*

NOTE.—Order of Faculty according to seniority of appointment.

* Not yet appointed.

THE AGRICULTURAL EXPERIMENT STATION.

BOARD OF CONTROL.

The Regents of the College.

EXPERIMENT STATION COMMITTEE.

Gen. T. R. TANNATT, *Chairman;* H. S. BLANDFORD, and E. S. INGRAHAM.

STATION STAFF.

JOHN W. HESTON, *President of the College,*
Director.

EDWARD R. LAKE, M. S.,
Agriculturist and Horticulturist.

CHAS. V. PIPER, B. S.,
Botonist and Entomologist.

ELTON FULMER, M. A.,
Chemist.

LYMAN C. READ,
Assistant Horticulturist.

JOHN B. JAMISON,
Foreman of the Farm.

The object of the Station is to carry out the provisions of the "Hatch Act."

Bulletins are issued frequently, and are sent free to all residents of the state requesting them.

GENERAL INFORMATION.

LOCATION, ORIGIN AND DESIGN.

The College is beautifully situated on an elevation directly east and overlooking the young flourishing town of Pullman, in Whitman county.

Its location in the midst of the famous Palouse Valley gives it unusual advantages for agricultural and other experimental purposes.

Pullman is supplied with numerous artesian wells of pure water, is healthfully located and has an intellectual and enterprising population of fifteen hundred people. It is also readily accessible from different parts of the state by both the Union and Northern Pacific Railroads. Their stations being less than a mile from the College renders it an easy matter to reach the College or visit the experimental farm connected with it.

The Washington Agricultural College and School of Science was established by the legislature in two separate acts.

The first, that of 1889, created a commission to establish a State College. The purpose in view is clearly expressed in section 8 of this act:

"That all instruction given in the College shall, to the utmost practicable extent, be conveyed by means of practical work in the laboratory. Said commission shall provide *
* * one physical laboratory or more, one biological

laboratory or more, and suitably furnish and equip the same. * * * A department of said College, to be designated the department of agriculture, and in connection therewith instruction in the following subjects: *First*, Physics, with special application of its principles to agriculture. *Second*, Chemistry, with special application of its principles to agriculture. *Third*, Morphology and physiology of plants, with special reference to the commonly grown crops, and their fungus enemies. *Fourth*, Morphology and physiology of the lower forms of animal life, with special reference to insect pests. *Fifth*, Morphology and physiology of the higher forms of animal life, and in particular the horse, cow, sheep and swine. *Sixth*, Agriculture, with special reference to breeding and feeding of live stock, and the best modes of cultivation of farm produce. *Seventh*, Mining and metallurgy."

This commission did not succeed in locating and establishing the College, but the section just quoted was not repealed by the next legislature, which, in 1891, passed an act *accepting the grants made by Congress* and establishing an institution of learning in conformity therewith. Section 2 of this last act declares:

"The Agricultural College, Experiment Station and School of Science created and established by this act shall be an institution of learning open to the children of all the residents of this state and to such other persons as the Board of Regents may determine. * * * Shall be non-sectarian in character and devoted to practical instruction in agriculture, mechanic arts, natural sciences connected therewith, as well as a thorough course of instruction in all branches of learning bearing upon agriculture and other industrial pursuits."

Section 3 of this act further indicates the scope and purpose of the college as follows:

"The course of instruction of the Agricultural College, Experiment Station and School of Science shall embrace the

English Language, Literature, Mathematics, Philosophy, Civil and Mechanical Engineering, Chemistry, Animal and Vegetable Anatomy and Physiology, the Veterinary Art, Entomology, Geology, and Political, Rural and Household Economy, Horticulture, Moral Philosophy, History, Mechanics, and such other sciences and courses of instruction as shall be prescribed by the Regents of this institution of learning."

The national legislation making donations of land and money for agricultural colleges is equally indicative of an intention to provide facilities for specific lines of study. Evidently the object has been to furnish the young a broad, practical and liberal education — not merely mental training put ethical, mental and manual, and to employ such methods as will secure the highest development of the whole being — at the same time to inculcate a proper sense of the dignity of labor, the duties and privileges of citizenship, and the great importance of applying to the various industries of life the scientific information obtained at school. It is therefore the object of the faculty of this institution to assist all who pursue its courses of study to obtain such an education as will enable them to apprehend their high destiny, to develop all their faculties of body, mind and soul, and to carry away with them such an inspiration as will insure a life of honest and earnest service in some useful field of labor. The facilities necessary to carry out the full design of the institution are expensive and can not all be obtained at the outset. It is certainly a wise policy of the legislature not to sell the magnificent land grant until it reaches a higher valuation. In the meantime the institution has a liberal income from other sources.

ENDOWMENT.

The funds of the institution are derivable from the following sources:

(*a*) State appropriations.

(*b*) United States law of March 2, 1887, known as the Hatch fund.

(*c*) United States law of August 30, 1890, known as the Morrill fund.

(*d*) Tuition from students outside of the state.

(*e*) Receipts of moneys from the sale of products of the farm and experiment station.

(*f*) Forfeitures of deposits by students for damages to furniture, etc.

THE HATCH FUND.

The law of March 2, 1887, established experiment stations in connection with agricultural colleges in the different states, and appropriated for the purpose the sum of $15,000, to be paid in equal quarterly payments on the first day of January, April, July and October in each year. This sum is appropriated for the purpose of "paying the necessary expenses of conducting investigations and experiments and printing and distributing the results." It also requires bulletins, or reports of progress, to be published at said stations at least once in three months, one copy of which shall be sent to each newspaper in the state, and to such farmers as may request the same. Out of the Hatch fund five per cent. may be expended in the erection, enlargement or repairs of a building or buildings necessary for carrying out the work of the Experiment Station.

THE MORRILL FUND.

This is the United States law of August 30, 1890. The object of this fund is a more complete endowment and support of the colleges for the benefit of agriculture and

the mechanic arts. It is paid annually, on or before the 31st day of July, to such officers as shall be designated by the laws of the state to receive the same, who shall, on the order of the Regents, immediately pay the same over to the treasurer of the board. The fund is $19,000 for the fiscal year ending June 30, 1894, and increases $1,000 each year until it reaches $25,000, when it thereafter remains stationary.

STATE APPROPRIATIONS AND FUNDS.

The United States has endowed the Agricultural College with 90,000 acres of land, and the School of Science with 100,000 acres. None of these lands have as yet been sold and converted into funds for the use of the institution. Less than half of each amount donated has been selected and appraised, and the valuation of that which has been appraised, 74,500 acres, amounts to nearly *one million dollars.* With the rapid increase in value of real estate this endowment will soon reach *two million dollars.* When these lands shall have been sold the moneys arising from such sales will constitute a fund for the endowment, support and maintenance of the College, and will be a permanent and irreducible fund, except that a sum not exceeding ten per cent. upon the amount received may be expended for the purchase of lands, for sites and experimental farms, whenever authorized by the legislature, but no portion of the fund nor the interest thereon shall be applied directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings.

The legislature of 1893 appropriated the following:

For college and administration building	$50,000 00
For mechanical engineering building	10,000 00
For deficiency	25,000 00
For fuel and incidentals	10,000 00
For sewerage system	1,500 00
For root house	500 00
Total	$97,000 00

REQUIREMENTS OF ADMISSION.

Candidates for the Freshman class must not be less than fifteen years of age. They must present evidences of good moral character and an honorable dismissal when coming from another institution.

Examinations for admission are held at the College, one day prior to the opening of the fall session, in 1893, on September 12, at 9 o'clock A. M. It is very important that all who enter for the first time shall be present at this examination, but where such is impossible special examinations will be arranged later, and applicants will be assigned to such classes as they are found best fitted to enter.

The examinations will be written and will include the studies embraced in the Preparatory course, namely: Arithmetic (including the metric system); English grammar and composition (an original essay will be required to demonstrate ability to use and spell words correctly, to punctuate properly and to express thought clearly); United States History (Scudder); English History (Lancaster); Elementary Algebra to Logarithms (Wentworth); Plane Geometry, *three* books (Wentworth); Elementary

Physics (Avery or Gage); and Physical Geography (Eclectic.*).

Candidates will also be tested as to their acquaintance with certain standard works in English literature.

During the years 1893–94 tests will be made in the following: Irving's *Sketch Book*, Scott's *Ivanhoe*, Longfellow's *Courtship of Miles Standish*, Shakespear's *Julius Cæsar* and *Merchant of Venice*, Emerson's *American Scholar*, and Hawthorne's *House of Seven Gables.*

Those who apply for advanced standing must pass an examination in the work taken by the class they enter.

ADMISSION WITHOUT EXAMINATION.

Graduates of High Schools in the cities of Spokane, Seattle and Tacoma, and from such other schools as the faculty may approve, will be admitted on their diploma without examination. Applicants arriving at the College should report to the President immediately. No student will be admitted to any class exercise except upon admission ticket from the President.

STUDENTS' EXPENSES AND EQUIPMENT.

Tuition is free in all departments. Those who occupy a room in the dormitory will be required to pay $17 a year. This is divided as follows: $7 for fall session; $5 for winter, and $5 for spring sessions. In addition to this, each student using a room in the dormitory is required to deposit $5 with the accountant as security against general

*The text books are indicated only to give a clearer idea of the requirements. Books of equal rank, *well mastered*, will furnish satisfactory evidence of sound preparation.

damages. This sum is returned to the student less that *pro rata* amount necessary to cover damage done to building and furniture when the person causing the damage is not known to the College authorities; but no such account is settled until after the close of the entire College year.

The damage deposit is payable when the student enters the institution. The other charges are payable *at the beginning of each session, or upon entrance if the student is received after the term has begun.* In no case will students be given quarters in the building until they have settled their bills at the business office or given such security for payment of the same as the Board of Regents may prescribe. Those who work in the laboratories will be charged only for material used and breakage.

Students rooming in the dormitory must provide themselves with the following:

4 or more sheets (for single bed).
3 or more pillow cases.
1 pillow and mattress (the latter can best be purchased here).
Bed clothes (blankets and comfortables).
4 or more towels.
1 wash basin, pitcher and slop pail (can be purchased here).
4 table napkins.
1 looking-glass.

Students are *advised* but not required to carpet their rooms; they would also do well to provide an easy chair and a cover for study tables. Study tables are all 2′ 3″ × 3′ 6″.

BOARDING.

The College does not provide table board. It has furnished a dining room and kitchen. The boarding department is managed by a committee of students and faculty,

who employ a steward and manage all the affairs of the club. One invariable rule is, that *each student must, upon entering the club, deposit with the steward $12.* Then, at the end of every month, an assessment is made, each member paying but the actual cost per capita per month. The average price per month has been, thus far, not more than $12.50.

TEXT BOOKS.

The *accountant* has a supply of such text books, in the business office, as are not on sale in book stores of the town. These books are furnished at as low a price as possible, but must be paid for when received.

SUMMARY OF EXPENSES.

Room rent (fall session)	$7 00
Room rent (winter session)	5 00
Room rent (spring session)	5 00
Damage deposit	5 00
Boarding (about) $12.50 per month, 10 months	125 00
Text books about $15 per year	15 00
Laundry expenses about	15 00
Total annual necessary expenses	$177 00

It is easily seen that by practicing economy a student can live comfortably on less than $200 a year, exclusive of clothing. When a military officer is detailed for the College the cadets will be required to purchase uniforms, but every effort will be made by the authorities of the College to obtain suits at the lowest possible figure.

The cost of a good military suit will not likely exceed $20, and may be less. It is, furthermore, as cheap as any civilian suit a student can purchase.

COURSES OF INSTRUCTION.

The following courses of study are provided:

1. General Science.
2. Agriculture.
3. Civil Engineering.
4. Mechanical Engineering, (including)
   (*a.*) Course in Electrical Engineering.
   (*b.*) Course in Mill and Hydraulic Engineering.
   (*c.*) Course in Steam Engineering.

The studies are essentially the same in the first three years—exactly alike the Freshman year—and are selected with reference to their value in securing mental discipline and in furnishing the necessary information for the more technical studies of the Senior year.

An effort has been made to include in all courses as many as possible of the general subjects so valuable for their influence in the formation of character and of correct views and purposes in life. Throughout all the courses will be found the idea of *theory* and *practice combined.* Along with a study of the theory, carefully arranged, *practicums* are provided.

Essays and *Rhetorical* exercises are required of all students throughout their entire course. The ability to read and speak in public with ease and effect is a valuable training for any young person, wherever his lot may be cast in after life.

SPECIAL COURSES.

Special courses are not encouraged by the faculty, but may be granted to those students of *mature years* who find it impossible to remain long enough to complete a full course. In all cases the applicant for special course must be able to pass *all examinations for freshman work;* must present his application in writing to the President to show that his selection of studies does not conflict with the schedule of recitations in force, and that it does provide him full amount of work. The faculty reserves the right to refuse the request entirely, or to direct some modification of it, as may seem best for the good of the student and the College. Students pursuing special courses are *not entitled* to degrees, but will receive certificates of work completed in a satisfactory manner.

DEGREES.

Those who complete a full four years' course will be given the usual degree as evidence of their attainments. The first degree in all courses will be B. S. (Bachelor of Science).

Two years after graduation, upon presentation of satisfactory evidence to the faculty of professional work or study, the second degree may be given; that is, a B. S. in the Mechanical Engineering Course may then obtain his M. E. degree, and so the B. S. in the Civil may become a C. E., and Bachelors of Science in the Scientific Course may receive the degree of Master of Science. In all cases there must be evidence of scientific post graduate work presented before the degree will be recommended by the faculty.

I.—COURSE IN GENERAL SCIENCE.

(Figures indicate hours of class exercises per week.)

	FALL SESSION.	WINTER SESSION.	SPRING SESSION.
FRESHMAN YEAR.	Rhetoric..... 4 Geometry..... 5 German..... 5 *Practicum.* Woodwork and Shorthand.....10	Geometry..... 5 General Chemistry... 5 German..... 5 *Practicum.* Mechanical Drawing and Shorthand.....10	Advanced Algebra... 5 General Chemistry... 5 Botany..... 5 *Practicum.* Forging or Shorthand 10
SOPHOMORE YEAR.	Plane Trigonometry..... 5 Botany..... 5 French ..... 5 *Practicum.* Surveying.....10	Trigonometry and Analytical Geom... 5 French ..... 5 Physics..... 5 *Practicum.* Botany, Physics.....10	Analytical Geom..... 5 General History..... 5 Physics..... 5 *Practicum.* Laboratory work, Physics.....10
JUNIOR YEAR.	Physics..... 4 Zoölogy ..... 5 English Literature... 3 General History..... 3 *Practicum.* Chemistry, Physics..10	Zoölogy..... 5 Astronomy..... 3 English Literature... 5 *Practicum.* Chemistry, Literature.....10	Geology..... 3 Logic..... 4 Zoölogy..... 3 Const. History..... 5 *Practicum.* Chemistry.....10
SENIOR YEAR.	Constitutional Law.. 4 Geology..... 4 Practical Astronomy..... 5 History Civilization, 4 *Practicum.* Mineralogy.....10	Political Economy... 5 Mental Science..... 4 Advanced French and German..... 5 *Practicum.* Thesis work.	Moral Science..... 5 International Law... 4 Advanced French and German..... 5 *Practicum.* Thesis work.

NOTE.—Students in all courses are required to write essays and participate in rhetorical exercises.

EXPLANATORY REMARKS.

The General Science Course provides an education both general and practical. It furnishes a training in Mathematics, the English and Modern Languages, the Natural Sciences, and in the more abstract studies, such as Political Economy, Logic, Mental and Moral Science, etc. A student who completes the course cannot but be fairly well prepared for a successful career in any modern calling or for a professional course.

Many of the studies in this course are also found in the others. They are explained here for convenience. Among the more prominent ones are:

MATHEMATICS.

The work in pure Mathematics extends through the Sophomore year. It embraces Higher Algebra, Plane and Solid Geometry, Trigonometry, Analytical Geometry and Calculus.

The methods of instruction are such as to secure the most complete mastery of principles and facility in their application. Both are essential to a sound and practical education, and are particularly necessary in the study of technical courses and in professional careers. Students are required to construct and solve numerous original problems, and are thus led to apply that which they learn of principles in actual practice.

MODERN LANGUAGES.

German and French are each given two full terms in the early part of all courses and are again taken up in the Senior year of the General Science. The object of the

instruction is to give, first of all, such familiarity with the idioms and laws of the language as will enable the student to read and translate with facility the scientific literature he may meet in his professional studies.

THE ENGLISH LANGUAGE.

This is taken up where the preparatory course ends and is continued throughout the entire College course, either by regular class exercises or essays and rhetorical work.

The text book work is confined to the study of Rhetoric and Literature.

Rhetoric is studied during the fall session of the Freshman year, particular attention being given to the application of the principles of Rhetoric in the study of a few standard authors.

The work also includes the writing and correction of essays and orations, with practice in criticism.

Literature is taken up by the Junior class during the fall and winter sessions. A general survey in Literature is given in order to prepare for the intelligent study of particular periods and authors; note is made of the laws of literary growth and the relation of literature to civilization. The student is required to read carefully and study critically selected works of the best authors, the end aimed at being the attainment of literary culture.

BOTANY.

This study occupies three terms. The spring session of the Freshman year is devoted to structural Botany of the flowering plants and the more simple anatomy of the same. Considerable time is given to systematic work,

and each student is required to prepare an herbarium of at least twenty-five species of native plants. This work is continued into the early part of the Sophomore year, attention being given mainly to the more difficult orders of flowering plants; as, *compositæ*, *cyperaceæ* and *gramineæ*, and to the ferns and mosses.

The remainder of the course is confined to the minute anatomy of typical plants of all orders, and special attention is given to the structure and life histories of destructive fungi.

The text books used are Gray's Lessons and Bessey's Botany. These are supplemented by occasional lectures. Drawing is a prominent feature of the laboratory work required.

ZOÖLOGY.

This subject is not included in quite all the technical courses, but is so nearly general that it is outlined here because of that and of its prominence. The course in this study is designed to give the student an intimate knowledge of the various structures of animals and their classification as based on the comparison of the same.

Each student is required to make careful dissections, both gross and minute, of representative forms, including mammal, bird, frog, fish, insect, crayfish, clam, earth worm, starfish, etc., and to make drawings and descriptions of the same. During the spring session considerable attention is given to systematic zoölogy and the preparation and preservation of specimens. Packard's Zoölogy is used as a guide and is supplemented by outlines of laboratory work and lectures.

CHEMISTRY, GEOLOGY AND MINERALOGY.

I. *Inorganic Chemistry.* The metallic and non-metallic elements of General Chemistry are taught by lectures, recitations and laboratory work. Special attention is given to the underlying principles of Chemistry; to the writing of reactions and their real significance; and to the working of chemical problems. The lectures are illustrated as far as possible by experiments.

In the laboratory the student performs experiments planned to supplement the subject and principles discussed in the lecture.

II. *Qualitative Analysis.* By a thorough study of the characteristic properties of the elements, the student is enabled not only to detect the presence of the elements, but also to effect the separation of one from others.

A definite number of analyses of unknown substances will be required.

In this work special attention will be given to the symbolic representation of the chemical processes which occur.

III. *Quantitative Analysis.* This consists of lectures on the different methods of analysis, both in gravimetric and volumetric work. In the laboratory the student will first work with substances of known percentage composition, and after having attained a sufficient degree of efficiency and accuracy, he will then take up the analysis of materials whose composition is unknown. This course is open only to those having a good knowledge of qualitative analysis.

IV. *Assaying.* This course includes lectures on the methods of assaying ores of gold, silver, lead, copper, etc.,

and students taking the work are given thorough instruction in the manipulation of assay furnaces, both coke and gasolene furnaces being used. If desired by a sufficient number of students, this course will be expanded to meet the requirements of elementary metallurgy. This course is also open only to students who have satisfactorily finished the work offered in qualitative analysis.

V. *Photography.* The chemical principles involved in photography, and directions for using the camera, and the development and finishing of the picture, will constitute the basis of the lectures. Students taking this course will be required to complete a certain number of satisfactory pictures.

ASTRONOMY.

As will be seen from the courses, Descriptive Astronomy is taken by the Scientific and Engineering students during the winter term of the Junior year; and Practical Astronomy and Navigation by the Scientific and Civil Engineering students in the fall term of the Senior year.

PHYSICS.

The work in Physics is taken up during the year following the winter term of the Sophomore year. To quite an extent text book work is supplemented with lecture and laboratory work. The physical laboratory is well supplied with instruments for illustrating the various physical phenomena.

HISTORY.

History is taken by all Sophomores in the spring session. The text book used is Myer's Mediæval History, and the

object of the work during this session is to give the student a general idea of the movements of nations during this period.

PHONOGRAPHY AND TYPEWRITING.

Phonography, or what is commonly known as shorthand, is recognized as one of the greatest labor saving agencies in the business world. It is invaluable to the person whose business requires a constant use of the pen, as it provides an art by which it is possible to write at the rate of at least six times that of the average writer of longhand. The present course is offered with the view of giving students an opportunity of acquiring a rapid system of writing, which will be helpful to them in the lecture room, laboratory and class room. While the aim is to give such instruction and practice as will be helpful to the student in his regular work, still a foundation will be laid broad and deep enough for any degree of proficieney, in view of the fact that this art opens up to the young man and young woman one of the most profitable and pleasant vocations. This course extends through two years; one year same as second preparatory; the other with Freshman studies; the work of the first including a study of the theory, with exercises in reading and writing from dictation; of the second, an application of the theory in speed practice, requiring no outside preparation. It is almost entirely a *practicum* exercise. The department is furnished with ten typewriters—five Remingtons and five Smith Premiers, latest improvements. Transcription on the typewriter of all notes made in class will be an essential part of the work during the entire course.

PHILOSOPHY.

This department includes Constitutional Law, Political Economy, International Law, and Mental and Moral Science.

Constitutional Law is pursued in the fall session of the Senior year. A careful study is made of the most prominent features in the United States constitution, and that of State of Washington. The object being to inform and interest the student in questions of government and administration. Cooley's text book is followed in class, while frequent reference is made to the Federalist and other standard works in constitutional literature.

Political Economy is studied in the winter session; text book, *Walker's Science of Wealth.* The subject is considered historically and in its bearings upon questions of the present time—such as proper distribution of wealth, finances, false and sound currency, the importance of a friendly relation between capital and labor, and the extent to which government may safely regulate the industrial activities of a people.

Mental Science—Text book, Sully. The course embraces a clear presentation of the mental faculties, their care and proper development, and a discussion of the fundamental principles upon which teaching processes are based and the science of education founded.

Moral Philosophy—Text book, Hickok's. This subject is considered in its relation to the individual, or the duty of the individual to himself, to society, to government, and to God.

International Law is not included in all the technical courses, but is a useful and practical study found in general scientific and agricultural courses. The text book used is Woolsey's; only selections from it being studied. Perhaps no other subject is so well calculated to broaden the horizon of the student; to assist him in comprehending the brotherhood of the human race, and the unity of interests nations possess in all matters of public welfare.

In all these subjects students are required to write and present for discussion results of original research and study.

II.—COURSE IN AGRICULTURE.

(Figures indicate hours of class exercises per week.)

	FALL SESSION.	WINTER SESSION.	SPRING SESSION.
FRESHMAN YEAR.	Rhetoric..... 4 Geometry..... 5 German..... 5 *Practicum.* Woodwork.....10	Geometry..... 5 General Chemistry... 5 German..... 5 *Practicum.* Mechan. Drawing....10	Advanced Algebra... 5 General Chemistry... 5 Botany..... 5 *Practicum.* Forging.....10
SOPHOMORE YEAR.	Plane Trigonometry..... 5 Botany..... 5 French ..... 5 *Practicum.* Surveying.....10	Agriculture..... 5 French ..... 5 Physics..... 5 *Practicum.* Botany and Physics.....10	Agriculture..... 5 General History..... 5 Physics..... 5 *Practicum.* Physics, Laboratory.....10
JUNIOR YEAR.	Physics..... 4 Zoölogy..... 5 Agriculture..... 3 Horticulture..... 3 *Practicum.* Chemistry and Physics.....10	Zoölogy..... 5 Horticulture..... 5 Agricultural Chemistry..... 5 *Practicum.* Chemistry and Zoölogy.....10	Geology..... 3 Logic..... 4 Entomology ..... 3 Agri. Experiments and Horticulture... 5 *Practicum.* Chemistry and Field work.....10
SENIOR YEAR.	Constitutional Law.. 4 Geology..... 4 Forestry..... 4 Veterinary Science... 4 *Practicum.* Meteorology and Forestry.....10	Political Economy... 4 Mental Science..... 4 Advanced French and German..... 5 *Practicum.* Thesis work.	Moral Science..... 5 International Law.... 4 Advanced French and German..... 5 *Practicum.* Thesis work.

EXPLANATORY REMARKS.

This course, beginning the second term of the Sophomore year, is intended primarily for those who expect to follow agriculture, in its general bearings, as a life work. The aim will be to give the student a thorough training in the approved principles of agricultural science. At the same time, all branches of modern agricultural manipulation will be practically illustrated in the field, laboratory, barn and shops, so far as present equipment will permit.

FIRST TERM.

Lectures and References.—Plant life on the farm. Soils, in their relation to crops; how plants feed and grow; drainage and its effects on soils; methods of open and blind drainage; irrigation and its effects on different soils; methods of irrigation; fertilizers, how to use and save.

Practical field work. Use and care of small tools.

References: Masters' Plant Life on the Farm; Storer's Agriculture; Johnson's How Crops Grow and Feed; Waring's Drainage.

SECOND TERM.

Lectures and References.—Farm crops. The principles and practices of crop growing; rotation; the seed bed and seeding; soil tillage, different methods of tilling various crops; weeds and weed killing; harvesting, storing and marketing crops.

Practical field work. Seeding, cultivating and harvesting crops. Use and care of machinery.

References: Storer's Agriculture.

THIRD TERM.

Lectures and References.— Stock breeding, feeding and management; laws of breeding; principles of feeding for meat, muscle or milk; forage crops, their relative values for this state; best methods of growing, curing and feeding.

Practical work in the dairy and feeding stables. Use and care of special machinery.

References: Mile's Stock Breeding; Armsby's Cattle Feeding; —— Dairying.

FOURTH TERM.

Lectures and References.— Rural economy; farm plans, buildings, planning, constructing and furnishing; farm sanitation; the construction, use and care of machinery; the keeping of accounts and records; farm waste, and general principles of the employment of labor.

Practical work in drafting plans and estimating cost of construction and repair of fences, roads, bridges, buildings, wells, etc.

References: Thomas' Farm Machinery; Atwood's Farm Buildings.

FIFTH TERM.

Lectures and References.— Agricultural experimentation; the principles, conditions and practices of experimentation in agricultural research, including actual practical experimentation by each student, in plant or animal nutrition, as he may elect; crops, plant growing and feeding in field and laboratory; stock feeding, butter making and egg production, together with the testing, weighing and meas-

urement of the quality, quantity and commercial value of the various products.

AGRICULTURAL CHEMISTRY.

This topic is taken up in the winter term of the Junior year, both by lectures and in laboratory. Topics considered are: Formation and composition of soils; classification of soils and their physical characteristics; chemical composition of plants; sources of food; farm manures, their composition, preservation and application; commercial fertilizers, origin, composition, preparation and use; the conditions of soil best adapted to plant growth and the objects to be gained by cultivation.

HORTICULTURE.

This subject, embracing fruit growing, vegetable growing and flower growing, is begun in the Fall term of the Junior year, after the student has taken certain elementary work in botany, which lies at the foundation of all true horticultural principles and practices. The subject is considered both as a science and an art. As a science, horticulture "may be considered as the application of the principles of vegetable physiology to the cultivation of plants;" as an art "it is the practical employment of those means necessary in the manual operations of the garden and orchard."

Instruction in the first part of the subject is chiefly given by means of lectures, with frequent reference to standard horticultural works; in the latter, by means of actual labor performed in the laboratory or field. Generally the science and the art go hand in hand, the class room lectures being

supplemented by forcing house, green house or field operations corresponding with the part under consideration. So far as possible the following order is maintained in the discussion of the subject matter.

FIRST TERM.

Lectures.—The plant, and its propagation, by means of seeds, buds, layers, cuttings, offsets, etc., including a consideration of the methods of seeding, budding, grafting and layering, together with practical exercises in these various operations, either in the open field or propagating house.

SECOND TERM.

Lectures and References.—The plant and its environment, including a discussion of the methods of cultivation, application of fertilizers, training, pollination and the scientific principles underlying these various operations. The plant and its improvement, including a consideration of the methods of improvement, selection by seedage, improvement by culture, and new varieties by cross fertilization; diseases, their pathology, preventives and remedies.

THIRD TERM.

Lectures and References.—The orchard, garden and nursery; location, site, soil and its preparation; drainage, irrigation; selection of trees and seeds, planting, sowing, cultivation, pruning, thinning, harvesting fruit and vegetables, plants and seeds; packing, marketing, storing.

FOURTH TERM.

Lectures and House Work.—Floriculture and landscape gardening; principles and practices in the growing of

plants for decorative purposes and the proper use and distribution of them in landscape work; a city lot, a country place, a school yard, a cemetery, a public park, and how to beautify them, together with a full and practical consideration of glass house heating and ventilating; making a lawn, walk and drive; massing plants for borders, screens, etc.; choice of plants for particular purposes.

FORESTRY.

Lectures and Field Work.—A consideration of forestal resources; timber economies; forest management; tree culture for timber belts or wind breaks; protection from fire, insect and other ravages; timber diseases; reforestation of mountainous areas.

ENTOMOLOGY.

Agricultural students take this study in the spring term of the Junior year, in place of General Zoölogy.

While the anatomy and classification of insects will not be neglected, special attention will be given to the economic phase of the science. Our principal insect pests will be made familiar by a study of well preserved specimens, and whenever possible, they will be carried through their various transformations in the class room or laboratory work.

Methods of destroying injurious insects will be given whenever practicable, by actual demonstrations on the farm or in the gardens.

Frequent excursions will be taken in the fields, and the students taught to collect, classify and preserve specimens.

III.—COURSE IN CIVIL ENGINEERING.

(Figures indicate hours of class exercises per week.)

	FALL SESSION.	WINTER SESSION.	SPRING SESSION.
FRESHMAN YEAR.	Rhetoric..... 4 Geometry..... 5 German..... 5 *Practicum.* Drawing 10	Geometry..... 5 General Chemistry... 5 German..... 5 *Practicum.* Mechan. Drawing....10	Advanced Algebra... 5 General Chemistry... 5 Botany..... 5 *Practicum.* Forging.....10
SOPHOMORE YEAR.	Plane Trigonometry..... 5 Botany..... 5 French..... 5 *Practicum.* Surveying.....10	Trigonometry and Analytical Geom... 5 French..... 5 Physics..... 5 *Practicum.* Descriptive Geom....10	Analytical Geometry..... 5 General History..... 5 Physics..... 5 *Practicum.* Mechan. Drawing....10
JUNIOR YEAR.	Physics..... 4 Calculus..... 5 Mechanics..... 5 *Practicum.* Field work.....10	Calculus..... 5 Astronomy..... 3 Applied Mechanics.. 5 Road Engineering... 3 *Practicum.* Laboratory work.....10	Geology..... 3 Logic..... 4 Hydraulics..... 5 Engi. Designs..... 3 *Practicum.* Drawing 10
SENIOR YEAR.	Constitutional Law.. 4 Sanitary Engineering .... 5 Practical Astronomy..... 5 Engi. Structures..... 3 *Practicum.* Orig. Field work.....10	Political Economy... 4 Stereotomy..... 5 Elec. Transmission... 5 Engi. Laboratory..... 4 *Practicum.* Designing.....10	Moral Science..... 5 Motors..... 5 Lectures on Civil Engi. Topics..... 5 *Practicum.* Thesis work.....10

EXPLANATORY STATEMENTS.

This course has been planned with a view of giving the student such a substantial foundation of technical knowledge needed by those practicing this profession as shall enable graduates to develop into useful constructors. To quite a degree, text book instruction is discouraged in this course, it being substituted largely by lectures.

The work is so arranged that the first two years are almost identical with those of the other courses, the only deviation being in the *practicum* work. As a preliminary essential a thorough drill is had in Higher Mathematics, Mechanics, Astronomy and the Sciences. In connection with Trigonometry during the fall term of the Sophomore year, Surveying is taken as a *practicum*. The usual pleasant weather admits of field work, in the fall of the Junior year, in which practical problems are taken up, using for reference Henck's Field Book. A *thorough study of Road Engineering* is made during the winter term of this year, while in the spring term following, the technical work includes Hydraulics and Engineering Designing.

A study of Engineering Structures and Sanitary Engineering is made in the fall term of the Senior year, after which in the winter, Electrical Transmission, Stereotomy and work in the engineering laboratory improve the time devoted to technical work. The last term of the course is largely devoted to lectures on engineering topics and the study of various motors. In the drawing room, during the Senior year, a complete design of some structure is made.

Extending through the entire course is a line of subjects of a general character, intended to fit the graduate for the responsibilities of citizenship.

Students of this department, upon the completion of the full course and the presentation of a satisfactory thesis, will receive the degree of Bachelor of Civil Engineering. Two years after graduation, upon the presentation of a thesis and proof of professional study, the degree of Civil Engineer will be conferred.

MECHANICAL ENGINEERING.

OBJECT.

The object of the first three years of these courses is to give the student such a drill in Mathematics, Mechanics, Machine Design, the use and care of tools, and other subjects necessary to fit one for the general duties of citizenship, as to enable him to understandingly choose a more technical line of work for the Senior year. Either one of these courses is designed to prepare students for a life work in that especial branch of Mechanical Engineering. In the comparatively new northwest section of the country there is a great demand for men whose education enables them to successfully deal with the problems of industrial development; men satisfactorily completing either of these courses should be so educated.

COURSES.

(1) Mill and Hydraulic Engineering.
(2) Steam Engineering.
(3) Electrical Engineering.

FACILITIES FOR INSTRUCTION.

The institution is now equipped with the necessary tools and machinery for giving practical instruction in wood working, forging and machine work. It is expected that during the coming year the new Mechanical Hall will be completed, thus giving increased facilities for doing practical as well as theoretical work. Students in this department have access to the technical library, which at present contains some of the latest and best books of reference upon mechanical subjects. This library will be constantly increased as the needs of the department require. Practical illustrations of problems in steam heating and electrical lighting are supplied in the plant which lights and heats the college buildings. The power house contains a thirty horse power, high speed Atlas engine, dynamo with capacity of 300 incandescent lights, with the necessary switch boards, ampere meters, etc. Power for the different shops is transmitted by means of electricity from the isolated power house. The boiler room contains a battery of four horizontal tubular boilers, in which is generated the steam for running the engine and heating the other college buildings. There are also two steam pumps, an injector, steam indicators and gauges for experimental as well as practical purposes. The department is well supplied with test gauges and scales, mycrometer calipers and other instruments for accurate measurements; there is also a large number of drawings, photographs, diagrams and models illustrating the best practice in the different branches of Mechanical Engineering. The following periodicals are kept on file for the use of the students in this department:

Electrieal Engineer, New York; Engineering Reeord, New York; Engineer, New York; Engineering News, New York; Journal of the Franklin Institute, Philadelphia; Power Steam, New York; Engineering, London.

MECHANICAL HALL.

The new Meehanieal Hall will contain an offiee 9 x 15; reeitation room, 15 x 18; drawing room, 18 x 27, designing room, 9 x 12; blue print room, 5 x 9; testing laboratory, 21 x 31; machine shop, 31 x 56; wood and pattern shop, 36 x 60; forge shop, 31 x 41; foundry, 28 x 31; tool room, 11 x 22, and toilet room, 20 x 30.

IV.—COURSE IN MECHANICAL ENGINEERING.

(Figures indicate hours of class exercises per week.)

	FALL SESSION.	WINTER SESSION.	SPRING SESSION.
FRESHMAN YEAR.	Rhetoric ..... 4 Geometry..... 5 German..... 5 *Practicum.* Woodwork 10	Geometry..... 5 General Chemistry... 5 German..... 5 *Practicum.* Mechan. Drawing....10	Advanced Algebra... 5 General Chemistry... 5 Botany ..... 5 *Practicum.* Forging.....10
SOPHOMORE YEAR.	Plane Trigonometry..... 5 Botany ..... 5 French ..... 5 *Practicum.* Mechan. Drawing....10	Trigonometry and Analytical Geom... 5 French ..... 5 Physics ..... 5 *Practicum.* Descriptive Geom....10	Analytical Geom..... 5 General History..... 5 Physics ..... 5 *Practicum.* Drawing and Machine work 10
JUNIOR YEAR.	Physics..... 4 Calculus ..... 5 Mechanics..... 5 *Practicum.* Machine work 10	Calculus ..... 5 Astronomy..... 3 Mechanics ..... 5 Kinematics..... 3 *Practicum.* Draw. and Machin...10	Geology ..... 3 Logic ..... 4 Engi. Materials..... 5 Machine Design..... 5 *Practicum.* Drawing 10
SENIOR YEAR.	Constitutional Law.. 4 Engin. Details..... 4 Thermo-Dynamics ... 5 Power Transmission ..... 4 *Practicum.* Pattern Making and Foundry work.....10	Political Economy... 4 V. and L. Motions.... 3 Boiler Practice and Design ..... 5 Foundations ..... 2 Engineering, Lab..... 4 *Practicum.* Steam Engineering and Designing.....10	Moral Science..... 5 Engines not Steam... 5 Eng. Laboratory..... 5 *Practicum.* Thesis Work.

V.—COURSE IN ELECTRICAL ENGINEERING.

(Figures indicate hours of class exercises per week.)

	FALL SESSION.	WINTER SESSION.	SPRING SESSION.
FRESHMAN YEAR.	Rhetoric..... 5 Geometry..... 5 German..... 5 *Practicum.* Woodwork.....10	Geometry..... 5 General Chemistry... 5 German..... 5 *Practicum.* Mechan. Drawing....10	Advanced Algebra... 5 General Chemistry... 5 Botany..... 5 *Practicum.* Forging.....10
SOPHOMORE YEAR.	Plane Trigonometry..... 5 Botany..... 5 French..... 5 *Practicum.* Mechan. Drawing....10	Trigonometry and Analytical Geom... 5 French..... 5 Physics..... 5 *Practicum.* Descriptive Geom.....10	Analytical Geom..... 5 General History..... 5 Physics..... 5 *Practicum.* Drawing and Machine work.....10
JUNIOR YEAR.	Physics..... 4 Calculus..... 5 Mechanics..... 5 *Practicum.* Machine work.....10	Calculus..... 5 Astronomy..... 3 Mechanics..... 5 Kinematics..... 3 *Practicum.* Drawing and Machine work.....10	Geology..... 3 Logic..... 4 Engi. Materials..... 5 Machine Design..... 5 *Practicum.* Drawing.....10
SENIOR YEAR.	Constitutional Law.. 4 Power Transm'n..... 4 Thermo-Dynamics... 5 Dynamo Details and Study of Motors.... 5 *Practicum.* Foundry work, Pattern Making.....10	Political Economy... 4 Electric Lighting..... 3 Electrical Transm'n.. 5 Foundations ..... 2 Electrical Laboratory..... 4 *Practicum.* Dynamo and Electrical Machinery...10	Moral Science..... 5 Study of Motors..... 5 Electrical Laboratory..... 5 *Practicum.* Thesis work.....10

VI.—COURSE IN MILL AND HYDRAULIC ENGINEERING.

(Figures indicate hours of class exercises per week.)

	FALL SESSION.	WINTER SESSION.	SPRING SESSION.
FRESHMAN YEAR.	Rhetoric..... 5 Geometry..... 5 German..... 5 *Practicum.* Wood work.....10	Geometry..... 5 General Chemistry... 5 German..... 5 *Practicum.* Mechan. Drawing.....10	Advanced Algebra... 5 General Chemistry... 5 Botany..... 5 *Practicum.* Forging.....10
SOPHOMORE YEAR.	Plane Trigonometry..... 5 Botany..... 5 French..... 5 *Practicum.* Mechan. Drawing....10	Trigonometry and Analytical Geom... 5 French..... 5 Physics..... 5 *Practicum.* Descriptive Geom....10	Analytical Geom..... 5 General History..... 5 Physics..... 5 *Practicum.* Drawing and Machine work.....10
JUNIOR YEAR.	Physics..... 4 Calculus..... 5 Mechanics..... 5 *Practicum.* Mechan. Drawing....10	Calculus..... 5 Astronomy..... 3 Mechanics..... 5 Kinematics..... 3 *Practicum.* Drawing and Machine work.....10	Geology..... 3 Logic..... 4 Engi. Materials..... 5 Machine Designs..... 5 *Practicum.* Drawing 10
SENIOR YEAR.	Constitutional Law.. 4 Power Transmission..... 4 Hydro-Dynamics..... 5 Water Motors..... 5 *Practicum.* Mill Architecture and Field work.....10	Political Economy... 4 Modes of Manufac... 5 Manufac. Economy.. 3 Foundations..... 2 Engineering, Lab..... 4 *Practicum.* Mill Designing.....10	Moral Science..... 5 Various Motors..... 5 Engineering, Lab..... 5 *Practicum.* Thesis work.

VII.—COURSE IN STEAM ENGINEERING.

(Figures indicate hours of class exercises per week.)

	FALL SESSION.	WINTER SESSION.	SPRING SESSION.
FRESHMAN YEAR.	Rhetoric..... 4 Geometry..... 5 German..... 5 *Practicum.* Wood work.....10	Geometry..... 5 General Chemistry... 5 German..... 5 *Practicum.* Mech. Drawing.....10	Advanced Algebra... 5 General Chemistry... 5 Botany ..... 5 *Practicum.* Forging 10
SOPHOMORE YEAR.	Plane Trigonometry..... 5 Botany ..... 5 French..... 5 *Practicum.* Mechanical Drawing 10	Trigonometry and Analytical Geom... 5 French..... 5 Physics..... 5 *Practicum.* Descriptive Geom....10	Analytical Geom..... 5 General History..... 5 Physics..... 5 *Practicum.* Drawing and Machine work.....10
JUNIOR YEAR.	Physics..... 5 Calculus..... 5 Mechanics..... 5 *Practicum.* Machine work 10	Calculus..... 5 Astronomy ..... 3 Mechanics..... 5 Kinematics..... 3 *Practicum.* Drawing and Machine work.....10	Geology..... 3 Logic..... 4 Eng. Materials..... 5 Machine Design..... 5 *Practicum.* Drawing 10
SENIOR YEAR.	Constitutional Law.. 4 Power Transmission..... 4 Thermo-Dynamics ... 5 Engine Details..... 5 *Practicum.* Foundry work and Pattern Making.....10	Political Economy... 4 Boiler Practice..... 5 Eng. Details, L. M..... 3 Foundations ..... 2 Engineering Lab..... 4 *Practicum.* Steam Eng. Design...10	Moral Science..... 5 Engines not Steam... 5 Engineering Lab..... 5 *Practicum.* Thesis work.....10

EXPLANATORY STATEMENTS.

The first three years of the courses in this department are correspondingly alike. During the Senior year the student may take one of the prescribed courses, or, with the advice of the professor in charge, choose a general course from the three given, upon the satisfactory completion of which he shall receive the degree of Bachelor of Mechanical Engineering, and upon the completion of either of the special courses he shall receive the same degree, with the special course mentioned in his diploma. Two years after graduation, upon the receipt of a thesis and proof of professional work, the college will confer the degree of Mechanical Engineer. The work in pure mathematics, sciences, mechanics and machine designs is completed during the Junior year, thus forming a firm foundation for the more technical work of the Senior year. Lectures on ethical, psychological and civil subjects are required during the Senior year.

DRAWING.

Mechanical Drawing is begun during the Freshman year and continued intermitently, including work in Descriptive Geometry, up to the spring term of the Sophomore year. From that time on through the Junior year Drawing is taken in alternation with Machine Work. Especial attention is given to the making and reading of working drawings. During the Senior year, an original design of some structure or machine, appropriate to the course taken, is made and, as far as possible, constructed in the shops of the department.

ELECTRICAL ENGINEERING.

The technical work of this course comprises the design of various electrical machinery, the study of the problems involving the distribution of electric light and the electrical transmission of power, besides practice in a great variety of measurements, computations and tests comprised in the construction and maintenance of power and light plants. The work is so planned as to give the student completing this course familiarity with the questions most likely to confront the electrical engineer.

MILL AND HYDRAULIC ENGINEERING.

The work in this course is designed to fit the student for the profession of Mill Engineer. During the Senior year problems in the design of manufacturing plants and the development of water powers are worked out. Work is also taken in economical transmission of power, mill architecture, manufacturing economy, foundations, field work, etc.

STEAM ENGINEERING.

Students finishing this course will be especially fitted to practice that branch of Mechanical Engineering which relates to the design, manufacture and care of the steam engine and its accessory apparatus. During the Senior year a practical design of some form of steam engine is made, and additional subjects common to the other courses are taken up.

FARM, CAMPUS AND BUILDINGS.

The College farm contains *two hundred acres.* It is located directly east and adjoining the campus, consists of valley, table and hill side land, and is well adapted for experimentation with cereals, fruit, forestry and grazing.

The soil is deep, a sedimentary deposit of volcanic origin, and is well supplied with those elements necessary to sustain plant life.

The entire farm is under cultivation; experiments are in progress with wheat and other cereals; fruit culture, gardening and forestry are also carried on successfully. The farm is supplied with dwelling house, stock barn and poultry house; also with the best of live stock, machinery and farm implements.

The *campus* contains about thirty acres, situated directly west of the College farm and adjoining the city limits of Pullman. It is beautifully located, and affords an excellent opportunity to lay out drives and otherwise decorate the grounds.

COLLEGE HALL.

This is a three-story frame building, containing class rooms, laboratories and offices. A new administration building is now in process of construction, to be built of stone and brick. This will contain twelve class rooms, chemical and physical laboratories, assembly hall, gymnasium and complete suite of offices for the President and Business Manager.

COLLEGE DORMITORY.

This is a brick structure, one hundred and four feet in length, with a frontage of fifty-seven feet. It is heated with steam and lighted by electricity. In the basement is a large and commodious dining hall, a complete kitchen with pantries, china closets and cold storage room. The four other stories are devoted to dormitory purposes, and will accommodate one hundred and thirty students with comfortable study and sleeping rooms.

LABORATORIES.

A brick building, thirty-six by sixty feet, is devoted to laboratories for agricultural experiment station officers. The other laboratories are *Biological:*

This is fitted up with the necessary tables, sinks, etc., and will accommodate about twenty students at a time. It contains *fifteen* R. & Q. Beck's "*Star*" microscopes, and all necessary accessories, both for Botanical and Zoölogical investigations.

The laboratory also contains a considerable number of standard works of reference. The *museum* is well supplied with specimens of the different plants of the Northwest, a large collection of insects, and a beginning has been made for a zoölogical collection. Students have free access to all of these.

The Chemical Laboratory is temporarily located in the basement of the College hall.

It is well equipped with chemical apparatus and table space for 32 students; also a private working laboratory for the professor.

SHOPS.

A shop twenty-eight feet by forty is now fitted up for carpentry work and an engine room furnished with a twenty-five horse power Atlas engine; a dynamo and electrical apparatus are used for experimental purposes and for lighting the College buildings. A new mechanical engineering building is now in process of construction, and has already been described.

METEOROLOGICAL INSTRUMENTS.

These consist of a mercurial barometer, maximum and minimum thermometer, rain gauges and wind vanes. It is the intention of the College authorities to enlarge this department and to make it more serviceable to the people of the locality and the entire state.

LIBRARY.

This is located in a comfortable part of the College hall and is well supplied with works of reference needed in all departments of the institution, except that some technical books constantly needed in the different laboratories are kept there. There is also a reading room in connection with the library well supplied with papers, periodicals and magazines.

Many of these are donated by the publishers, and are gratefully acknowledged: Seattle Daily Telegraph, Spokane Review, Walla Walla Daily Journal, Washington Independent, Morning Olympian-Tribune, Walla Walla Statesman, Sprague Herald, Washington Economist, Columbia Chronicle, Tacoma Daily News, Goldendale Sentinel, Pullman Tribune, Garfield Enterprise, Washington

Farmer, Montesano Vidette, Chehalis Bee, Puget Sound Mail, Colton News Letter, Astoria Sentinel, Waitesburg Times, Aberdeen Herald, Goldendale Courier, Pullman Herald, Farmington Forum, Pacific Journal, Hamilton Herald, Snohomish Eye, Ocosta Pioneer, Aberdeen Bulletin, Sumas News, Palouse Gazette, Colfax Commoner, Stock Grower and Farmer, Southwestern Stockman, Wisconsin Farmer, Texas Farm and Ranch, Farmers' Home Journal, Florida Agriculturist, Press and Horticulturist, Northwest and Pacific Farmer, Texas Farmer, American Horse Breeder, Farmer's Home, Industrial World, Agriculturist, Orange County Farmer, Summerside Journal, American Farmer, Hoard's Dairyman, Farm and Home, Ohio Farmer, Orange Judd Farmer, Science, Live Stock Indicator, Fargo Forum, American Bee Journal, Farm and Fireside, Metropolitan and Rural Home, Northwestern Live Stock Journal, Industrial Journal, American Agriculturist, Home and Farm, Farmer's Home Journal, Rural Spirit, Breeder's Gazette, Farmer's Review, Indiana Farmer, California Fruit Grower, Farm, Field and Stockman, Nebraska Farmer, Kansas Farmer, Homestead, Dakota Ruralist, Stock Journal, Colorado Farmer, The Husbandman, Prairie Farmer, Farm, Stock and Home, American Cultivator, Northwestern Agriculturist, Dakota Huronite, Farmer's Friend, American Poultry Journal, Toledo News, Mirror and Farmer, Iowa Farmer and Breeder, Rural Northwest, Dakota Farmer, Western Stockman and Cultivator, Wisconsin Agriculturist, Journal of Agriculture, Gleanings in Bee Culture, Southern Farm,

Farm Journal, Fruit Growers' Journal, Poultry Monthly, Vick's Illustrated Magazine, Orchard and Garden, Farmer's Voice, Green's Fruit Grower, University Record, American Grange Bulletin, Jersey Bulletin, Connecticut Farmer, Pennsylvania Farmer, Regents' Bulletins of University of New York.

LIST OF STUDENTS.

SENIOR CLASS.

NAME.	RESIDENCE.	COURSE.
Steine, Thomas O.,	Brookings, N. D.,	Agricultural.

SOPHOMORES.

Cosand, Daisc,	Latah,	Scientific.
Hungate, Jessie E.,	Pullman,	Scientific.
Hardwick, Emma,	Pullman,	Scientific.
Johnson, Mary C.,	Pullman,	Scientific.
McKay, Graham J.,	Guy,	Scientific.
Prichard, Minnie V.,	Rosalia,	Scientific.
Wallace, Irwin S.,	LaConner,	Scientific.

FRESHMEN.

Ausman, George N.,	Asotin,	Scientific.
Busbey, Cleo,	Pullman,	Scientific.
Barkhuff, William D.,	Colton,	Agricultural.
Crocker, Marie G.,	Johnson,	Scientific.
Chapman, Walter S.,	Wilbur, Or.,	Scientific.
Clothier, Arthur W.,	New Whatcom,	Scientific.
Chilberg, Eugene,	Seattle,	Scientific.
Estby, Carl,	Norman,	Mech. Eng.
Eastman, Claude,	Pullman,	Scientific.
Foy, Burdette N.,	Seattle,	Elec. Eng.
Gilbreath, Susie E.,	Dayton,	Scientific.
Gilbreath, Rose,	Dayton,	Scientific.
Grimmette, Winnie,	Custer,	Scientific.
Goodin, Effie I.,	Johnson,	Scientific.
Hungate, James W.,	Pullman,	Scientific.

NAME.	RESIDENCE.	COURSE.
Hardwick, Thomas J.,	Pullman,	Mech. Eng.
Irwin, Fannie,	Endicott,	Scientific.
Johnson, William R.,	Pullman,	Agricultural.
Klemgard, John M.,	Pullman,	Mech. Eng.
Leonhardt, Elbert,	Edmonds,	Agricultural.
Long, Stanley B.,	Chehalis,	Scientific.
Lyon, Nellie E.,	Pullman,	Scientific.
Manring, George,	Garfield,	Agricultural.
Moys, Katie,	Pullman,	Scientific.
Merriman, E. Q.,	Pullman,	Scientific.
Miller, Nellie F.,	Rosalia,	Scientific.
Moody, Arthur E.,	Pullman,	Scientific.
Manring, Sanford A.,	Garfield,	Agricultural.
McKay, Hattie L.,	Pullman,	Scientific.
McDowell, James T.,	Ellensburgh,	Scientific.
McManamon, J. F.,	Walla Walla,	Scientific.
Newcomb, Claude F.,	Walla Walla,	Scientific.
Nixon, George,	Harrisburg, Or.,	Engineering.
Obenland, Adolph,	Pomeroy,	Scientific.
Oman, Edmund E.,	Davenport,	Scientific.
Price, Clara C.,	Guy,	Scientific.
Ryker, George M.,	Rockdale,	Scientific.
Smith, La Fayette,	Addy,	Scientific.
Turner, Elmer F.,	Davenport,	Scientific.
Van Doren, Woodhull S.,	Pullman,	Engineering.
Wells, Alonzo T.,	Rosalia,	Scientific.
Woodworth, Grace E.,	Colton,	Scientific.
Wright, Clara,	Douglas,	Scientific.
Wallis, Catharine,	Pullman,	Scientific.

SPECIALS.

Atwood, Mary Blanche, ... Dayton.
Anderson, Bert, ... Rosalia.
Allen, Fred C., ... Spokane.
Abrams, William E., ... Colfax.
Bigelow, Duncan J., ... Olympia.
Beecher, John, ... Pullman.
Boozer, Frank A., ... Rosalia.
Bartges, John C., ... Dayton.
Buckley, William J., ... Pullman.
Boozer, Josephine, ... Rosalia.
Barbee, Laura W., ... Pullman.
Coston, Lillie May, ... Pullman.
Clark, Jessie, ... Pasco.
Clark, Benjamin, ... Palouse.
Cosand, Charles C., ... Latah.
Downs, Ollie, ... Guy.
Delaney, Alice, ... Farmington.
Dickson, Ambrose, ... Pomeroy.
Fultz, Mattie J., ... Farmington.
Fry, Fred L., ... Bonners' Ferry, Idaho.
Ford, Kate B., ... Pullman.
Filer, David L., ... Asotin.
Gammon, Lester, ... Ellensburgh.
Greif, John J., ... Uniontown.
Grimes, George G., ... Pullman.
Herndon, Athey, ... Chehalis.
Hunt, Shella L., ... Spokane.
Hubbard, John D., ... Pullman.
Hattrup, Fred W., ... Uniontown.
Hattrup, Frank, ... Uniontown.
Hemingway, T. L., ... Harrison.
Johnson, Oscar F., ... Pullman.

Kennedy, Ira M., ... Jamison.
Keifer, John B., ... New Whatcom.
Lewis, Irvin, ... Johnson.
Lyle, John W., ... Pullman.
Lobaugh, Albert M., ... Pullman.
Maynard, Thad. T., ... Colton.
Maynard, Fred., ... Colton.
McReynolds, Frank, ... Guy.
McKay, William J., ... Pullman.
Nelson, Lyman E., ... Seattle.
Nelson, Nelse, ... Seattle.
Nesbitt, Allen J., ... Cœur d'Alene, Idaho.
Oenning, Fredrick, ... Uniontown.
Osterholtz, Henry, ... Olympia.
Pickell, Bert, ... Pullman.
Stratton, Orin H., ... Pullman.
Stafford, Nellie R., ... Fairfield.
Shanks, James F., ... Pullman.
Storer, Lettie, ... Dayton.
Torrey, Linton, ... Palouse.
True, Harry E., ... Pullman.
Taylor, Mary J., ... Pullman.
Taylor, Fred L., ... Pullman.

PREPARATORY.

Armstrong, Robert W., ... Colfax.
Bryant, Erastus W., ... Pullman.
Bryant, Nathaniel, ... Pullman.
Beecher, Jay D., ... Pullman.
Beams, Martha J., ... Pullman.
Benson, Charles S., ... Walla Walla.
Baker, Newton G., ... Pullman.
Brink, Bessie L., ... Farmington.
Burns, Charles, ... Pullman.

Benedict, John M., ... Almota.
Brownfield, Joel J. . . . . Waterville.
Benner, Allen E., ... Colfax.
Brownfield, Robert, ... Waterville.
Bartges, Warren E., ... Dayton.
Baird, Otis, ... Pullman.
Coffland, Ancel D., ... Pullman.
Cole, Lizzie, ... Colfax.
Coleman, George L., ... Pullman.
Clark, Gerald, ... Spokane.
Clark, Fred, ... Pasco.
Campbell, Benjamin F., ... Pullman.
Campbell, George, ... Palouse.
Cronk, Herbert W., ... Elberton.
Clark, Etta May, ... Wallace, Idaho.
Coston, Alva Z., ... Pullman.
Cromwell, Howard B., ... Pullman.
Daggett, Mathew H., ... St. Maries, Idaho.
Downs, Maude, ... Guy.
Downs, Don Ray, ... Guy.
Davis, Ulysses G., ... Pullman.
Dunham, William H., ... White Salmon.
Elbert, John, ... Pullman.
Estby, Marie, ... Norman.
Flatt, Edward M., ... Pullman.
Ford, Charles, ... Pullman.
Fellows, Emma, ... Spangle.
Farrand, George E., ... Pullman,
Fellows, Stephen, ... Spangle.
Gilliam, Herbert, ... Garfield.
Hubbard, James I., ... Endicott.
Hall, Perry C., ... Ellensburgh.
Hamilton, Naoma, ... Pullman.
Henry, William M., ... Pullman.

Hammond, Elbridge R., ... Pullman.
Harris, J. L., ... Pullman.
Huston, Thomas S., ... Pullman.
Henry, Alice Bell, ... Colfax.
Hill, Logan H., ... Pullman.
Howe, Laura, ... Pullman.
Hoxsey, Thomas E., ... Spangle.
Haydon, Carrie J., ... Farmington.
Hamblen, Ella, ... Endicott.
Howe, Mortimer, ... Tacoma.
Hampton, Thomas, ... Palouse.
Hubbard, Charles A., ... Endicott.
Hardesty, William D., ... Rosalia.
Hilton, Richard J., ... Alto.
Henry, Alma, ... Pullman.
Howell, George M., ... Guy.
Hickman, Jennie P., ... Almota.
Harmon, William L., ... Ellensburgh.
Hickman, Sanford, ... Almota.
Harmon, Effie, ... Dayton.
Harmon, William F., ... Dayton.
Jenson, Albert, ... Argyle.
Jamison, John B., ... Endicott.
Kindsman, James, ... Walla Walla.
Kays, Charles W., ... Moscow, Idaho.
Krugel, William C., ... Pullman.
Larsen, Minnie, ... Pullman.
Larsen, Bert, ... Pullman,
Leasure, Frank W., ... Moscow, Idaho.
Leasure, Effie, ... Moscow, Idaho.
Landess, James, ... Colton.
Landess, Bertha, ... Colton.
Looney, Harve, ... Albany, Oregon.
Lee, Frank A., ... Penewawa.

McCroskey, Virgil T., ... Colfax.
McFarlane, John P., ... Pullman.
McFarland, Bessie, ... Farmington.
McCroskey, Milton, ... Colfax.
McMichael, John, ... Spangle.
McDowell, William O., ... Ellensburgh.
Matthews, Thomas, ... Pullman.
Marsh, Ulysses G., ... Palouse.
Miller, Henry A., ... Colfax.
Maynard, Jennie, ... Colton.
Muncy, Nellie, ... Dayton.
Morgan, Otis, ... Pullman.
Moraz, John, ... Colton.
Morgan, Charles, ... Pullman.
Moys, Edgar H., ... Pullman.
Moys, George L., ... Pullman.
Markham, John S., ... Vashon.
Nickerson, William H., ... Plaza.
Oman, Lewis L., ... Davenport.
O'Bannon, P. L., ... Pullman.
Palmerton, George L., ... Pullman.
Palmerton, George W., ... Pullman.
Pickell, Howard B., ... Pullman.
Pitt, Charles S., ... Palouse.
Pendell, Willis A., ... Guy.
Pendell, Walter B., ... Guy.
Porter, Lalia C., ... Fairfield.
Pickle, Thomas, ... Pullman.
Roulet, Louis L., ... Colfax.
Roberts, Racy, ... Johnson.
Rawnsley, Wilbur G., ... Pataha City.
Roberts, Lou, ... Johnson.
Roberts, Phœbe, ... Johnson.
Routhe, Albert C., ... Rockdale.

Ringer, Myrtle J., ... Colfax.
Ringer, Jennie, ... Colfax.
Richardson, Pearl, ... Colton.
Stratton, Amanda M., ... Pullman.
Short, Jessie O., ... Palouse.
Sargent, Glenn, ... Pullman.
Smith, Herbert, ... Penewawa.
Smith, George T., ... Penewawa.
Stiles, Herbert A., ... Pomeroy.
Spates, Edward, ... Pasco.
Stratton, Frances B., ... Pullman.
Sitts, George F., ... Lincoln.
Stiles, Henry C., ... Pomeroy.
Thompson, Edgar D., ... Waterville.
Thompson, Joseph C., ... Athena, Or.
Taylor, Phœbe B., ... Pullman.
Turner, George A., ... Davenport.

THE PREPARATORY DEPARTMENT.

This department is maintained to furnish instruction for those who are not sufficiently advanced to enter the Freshman class.

The course of instruction offered covers a period of two years, and aims to give a sound training and such development as will enable the student to carry any of the college courses successfully.

ADMISSION.

Applicants for admission must be at least *thirteen years of age* and be able to pass a satisfactory examination in reading, in arithmetic (to percentage), in English grammar and language far enough to show familiarity with the different parts of speech, and ability to analyze sentences with ease and accuracy.

He must also show, in general, such thoroughness in these branches and such development as will indicate ability to pursue the preparatory studies of the first year creditably before he will be received.

For admission to higher standing it will be necessary, in addition to this, to pass an examination in the studies taken by the class entered.

Tuition is free in the Preparatory Department as in all others. The only college charges are those indicated on page 15.

PREPARATORY COURSE—FIRST YEAR.

	Subjects.	*Hours per week.*	*Text books and outline of work.*
FALL SESSION. 14 weeks.	Arithmetic	5	Thompson's Complete, from "Percentage" to "Ratio."
	English Grammar	5	Maxwell, Etymology, chapters III, IV.
	Physiology	5	Walker, completed.
			Exercises in Spelling and Reading.
WINTER SESSION. 12 weeks.	Arithmetic	5	Thompson, completed from "Ratio."
	English Grammar	5	Maxwell, completed, chapter V.
	United States History	5	Scudder, parts I, II.
			Exercises in Spelling and Reading.
SPRING SESSION. 12 weeks.	Algebra	5	Wentworth's Elements, to chapter VII.
	English Composition	5	Keeler & Davis, chapters I–V.
	United States History	5	Scudder, completed.
			Exercises in Spelling and Reading.

PREPARATORY COURSE—SECOND YEAR.

	Subjects.	*Hours per week.*	*Text books and outline of work.*
FALL SESSION. 14 weeks.	Algebra	5	Wentworth's Elements, from chapter VII to XIII.
	English Composition	5	Keeler & Davis, from chapter VI to IX.
	Physics	5	Avery's Elements, to Magnetism.
			Practicum in Shorthand and Typewriting or Freehand Drawing.
WINTER SESSION. 12 weeks.	Algebra	5	Continued to chapter XIX (Logarithms).
	English Composition	5	Keeler & Davis, completed.
	Physics	5	Avery, completed.
			Practicum in Shorthand and Freehand Drawing.
SPRING SESSION. 12 weeks.	Plane Geometry	5	Wentworth's, books I, III.
	English History	5	Lancaster, completed.
	Physical Geography	5	Eclectic, completed.
			Practicum in Shorthand or Freehand Drawing; also, English Classics read.

FARMERS' INSTITUTES AND READING CIRCLES.

It is the desire of those in charge of the institution to make it serviceable to all classes, but particularly to those engaged in agriculture and other industrial pursuits.

We believe the College should do something for those who may not be able to pursue a resident course of study, and that it can do this without impairing its usefulness in the least as a scientific and technical institution of learning.

It is the intention, therefore, during the coming winter to arrange for several Farmers' Institutes in different parts of the state. Here the objects and methods of the institution may be presented to the farmers, and topics discussed of practical value to all engaged in that important vocation. At the same time an effort will be made to organize *Reading Circles* among those engaged in agriculture. A list of books will be suggested and a systematic course of reading offered along lines which have direct bearing on all agricultural interests.

Some plan, it is hoped, may be adopted by the Regents, at an early date, whereby free scholarships can be offered those young men who show special fitness for and a desire to obtain a college education. This can easily be done in connection with reading circles, the scholarships offered as a premium to those who excel in the readings of that course.